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DURHAM, N.H. – At a time when clean air and climate change are becoming increasingly important topics, both scientifically and politically, University of New Hampshire forest ecologist Scott Ollinger is helping assess just how effective the federal Clean Air Act (CAA) has been at protecting the nation’s natural resources.

Ollinger was recently selected to serve on a panel of seven scientists on the U.S. Environmental Protection Agency (EPA) Science Advisory Board’s newly formed Ecological Effects Subcommittee.

The subcommittee is charged with helping to determine how effective the CAA has been at protecting ecosystems. Such periodic self-review is mandated by the sweeping legislation, which was passed in 1970 and amended in 1990.

“At this point, the EPA is gearing up to do its next major assessment of the CAA, and we’re trying to create the recipe for that analysis,” Ollinger says.

According to Ollinger, an assistant professor at UNH’s Institute for the Study of Earth, Oceans, and Space (EOS) and Department of Natural Resources, the formation of the subcommittee is significant because it represents the first time the EPA has focused exclusively on the ecological impacts of complying with the CAA.

In the past, consideration of ecological impacts has been combined with assessments that focused on human health or economic consequences. Ollinger made an earlier contribution to one such effort that involved a cost-benefit analysis of CAA compliance on a variety of U.S. industries.

"That assessment focused primarily on economic effects," Ollinger says of the analyses, "but ecological effects are typically very difficult to quantify in purely economic terms. My area of expertise, forest ecosystems, was one of the few areas where you could do that, although to a very limited extent by, for example, analyzing pollution effects on forest growth and health vis-a-vis board feet of timber lost or gained."

The EPA subcommittee is “strictly advisory” and has been charged with making recommendations at the end of a two-year analysis. Says Ollinger, “What they want to know..."
from us is, ‘What should we do?’"

At a recent meeting at EPA headquarters in Washington, D.C., the subcommittee members agreed that one viable means of assessing how well the CAA has protected natural resources would be for the EPA to conduct several, detailed case studies of smaller regions of the country.

"Ultimately, we'd like to be able to determine the full range of ecological effect both direct and indirect—on all ecological processes across the entire country. But given the enormity of such a task, we felt that a series of smaller, more focused, studies would be a useful step in the right direction."

Although the subcommittee has come up with a list of 12 possible geographic regions, including the Chesapeake Bay region, Ollinger notes that focusing on the New England region might provide the biggest “bang for the buck” for a variety of reasons.

Nitrogen pollution in the coastal zones of the Gulf of Maine, for example, comes primarily from air pollution, whereas in the Chesapeake Bay nitrogen input comes more from fertilization of agricultural land.

In addition, the Northeast, often referred to as the “tailpipe” of the U.S. with respect to pollution transport, has a wealth of existing data from a large number of study sites (e.g., Long Term Ecological Research sites at Hubbard Brook Experimental Forest and Harvard Forest) that could be synthesized for a case study.